/17 cont./
and by Zerries for the Waiká (63).

63. Zerries, 1954b, p. 73.

411

3. War and Hunting Weapons and Accessories

For war and hunting expeditions the Surára and Pakidái, exactly like most of the other forest nomads of South America, use very large bows -- hâtonahî -- and arrows -- xeréka (Ill. 12).

[824] The bows, so-called simple bows because they consist of only one piece, are made out of the heavy black wood of the pupunha or chonta palm (Guilielma speciosa Mart.) and are between 2.03-2.12 meters long. Their tension-strength weight is 32 kilograms and the length of stretch 71 centimeters (64). As

64. Pertinent comparisons with bows of other South American tribes may be found in Ranke's chart (Ranke, 1903, p. 347).

the result of a not too marked, but uniform curvature, they have a symmetrical appearance. While the outer side is flat, the inner side is rounded, so that the cross-section, which in the center amounts to 2-2 1/2 centimeters, appears semicircular. The two ends come to a point (Fig. 2 i).

411 With regard to their construction it may be said that now-
412 adays the bow-staff is first roughly shaped with ax and terçado
322 (large bush-knife (65). (I did not find any stone axes, which

[439]

65. They obtain these objects by barter with piaçabeiros (palm-fiber gatherers) and as gifts from the personnel of the Indian protection post Ajuricaba on the middle Demini.

[439] were perhaps once used in former times.) Subsequently the men shape them with a small knife, which they likewise obtain by barter.

Surára
Pakidái
Shiriana
Samatari

/17 cont./

411 barter. For smoothing, they use the inner edge of the eye-tooth
412 from the lower jaw of a wild pig and the rough leaves of the
322 curatella (Cecropia peltata), which gives the bow a beautiful,
237 shiny appearance.
824 The bowstring -- penahitãbe --, which consists of three
411 strands of curauá (Bromeliaceae) fiber strings twisted to the right,
283 is fastened to the bow ends with a simple knot. If one wants to tighten up the bow, the string must be twisted more, which makes it shorter.

411 The bow described may be immediately classified as one of
191 the typical bow-forms of Guiana, which Métraux characterizes as
114 follows: "Guiana bows were generally convex on the belly while the back or outer surface was concave or flat" /cited in English/ (66).

66. Métraux, 1949, p. 232.

According to Meyer's classification, on account of its semi-circular cross-section, it would /18/ belong to the North Brazilian bow-type; on the basis of the material, however, to the Peru group, because it is not the reddish-brown, smooth leguminous wood, but that of the pupunha palm (67). P. Schmidt also

67. Meyer, no date, p. 31.

devotes a rather long section to this "reverse form of the flat bow" and already lists the following tribes north of the Amazonas where it occurs: "Kanamare on the Rio Jurua, Trio, Ojana, Makusi, Wapisiana, Uaupe, Porokoto, Passe (child's bow), Siriana on the Rio /Fig. 2 appears here./ /19/ Uraricapara,
411 Motomoto" (68). On the basis of the descriptions and illustra-
184
114

68. P. Schmidt, 1913, p. 1030.

tions of the Xiriãna bow which Koch-Grünberg gives (69), it is

69. Koch-Grünberg, 1923a, p. 311 and Pl. 47 (1 and 2a, b, c, d).

[Text continues on p. 39]

Surára Pakidái

/25 cont./

372
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184
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119.(cont.) für Volkerkund und Vorgeschichte (Boeldecke Collection 56. 15 3a and b), and presumably the fire-making apparatus is likewise fastened to the quiver among the Waiká. Definite statements about this by Zerries and Schuster have not yet been made.

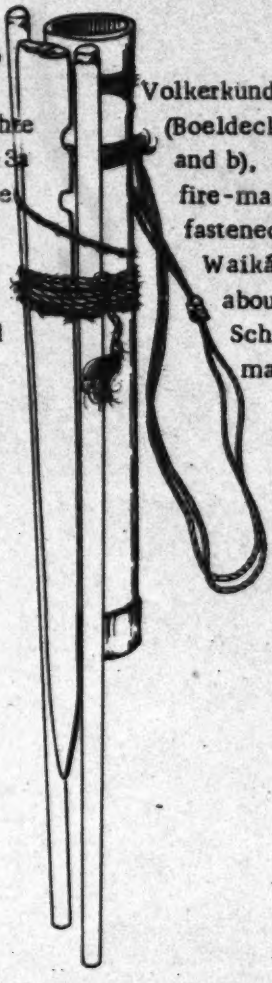

Fig. 5. Bamboo quiver with fire-drill apparatus tied on.

372 Nevertheless,
[484] it is perfectly obvious, for if the Surára and Pakidái men on war and hunting expeditions are unable to return to the maloka in the evening, they are able to kindle a fire along the way in three to four minutes. To do this a man in a squatting position holds the hearth on the ground with one foot and drills with the palms of his
[412] hands (Ill. 31). The holes of the hearth are previously bored with
[239] a knife made of the sharp tooth of the cutia (Dasyprocta aguti L.) (See P. 116) and are /26/ connected with a small groove at the side.

/42 cont./

304 824 386 412 197 The former use the juice of the genipap fruit as coloring matter, the latter the ashes of burned honey bees (229) /see footnote p. 90/. The original instrument everywhere for the puncturing of the dots was a palm thorn. Koch-Grünberg, however, also saw the use of pointed fragments of glass among the above-mentioned Karaiben (230).

230. Koch-Grünberg, 1923a, p. 45.

304 174 171 114 A decision about whether the tattooings in the mouth region developed independently among the aforementioned Yanonámi, Karaiben, and Aruak tribes or whether they were brought about by reciprocal or outside influences cannot be reached as yet, although Koch-Grünberg saw a young Xiriána woman who had the fishhook and dot tattooing of the Arekuná-Taulipang painted on her face (231). This may have been an exception, however,

231. Koch-Grünberg, 1923a, p. 305.

for, strangely enough, he did not find any further tattooing among the Xiriána.

[179] The designs of the Surára and Pakidái also seem to be more primitive than the basic motifs of the Karaiben and Aruaken in the form of fishhooks, which clearly point to borrowings from civilization. Moreover, the fact that among the Karaiben tribes of Guiana individual men and boys are tattooed in the region of the mouth leads one to conclude that there has been a leveling of this custom. For probably there, too, it was formerly reserved for only the women, just as it is today among the Surára and Pakidái.

In conclusion, reference is to be made to P. Schmidt and Nordenskiöld, from whom there are already available brief, summary studies about puncture-tattooing in South America. The first-named author differentiates two groups, which are reserved for men and women or only for women, respectively, and regards a western origin as probable (232). /43/ On the other

/45 cont./

301 in most cases, a silver triangle, a large glass bead, or a fruit pit is fastened at the bottom.

301 439 When I came to the Surára and Pakidái, a few bead chains were already in use. According to their statements, they had obtained the glass beads from the Indian protection post Ajuricaba on the Rio Demini, from rubber and palm-fiber gatherers, and from the Xiriána. The latter had presumably acquired this foreign commodity from Karaiben tribes who, for their part, had received it from the whites. This shows that the barter of glass beads is still carried on vigorously among the Indians themselves (245).

[114]

245. It was already observed by v. Martius that glass beads were traded over wide areas (von Martius, 1867, I, pp. 702 ff.), and Krause also points out that they are greatly prized as trade items (Krause, 1911, p. 279).

7. Hammocks

352 [824] The Surára and Pakidái have three different kinds of hammocks. The hammock of embira (tree bast, Malvaceae sp.) -- yâritanaçík -- whose length is between 1.80-1.90 meters, may probably be regarded as the oldest and most primitive form (Ill. 26). It has no weft and consists only of ten to 14 embira strips [284] 1-2 centimeters wide. These are bent over at the ends and tied together by means of two ropes 1.30-1.40 meters long, which at the same time serve for suspension (Fig. 18a and b). Both ropes are very strong and durable, for they have been plaited in the form of a braid out of three one-centimeter-wide /46/ /Fig. 18 appears [462] here/ strands of embira. The manufacture of this hammock is [824] extracrdinarily simple and is done only by men. From the embira [284] tree they remove 10-15 bast strips two meters long and 1-2 centimeters wide, which they tie together in the manner described above, after they have first plaited two ropes. To cut the tree [412] bast they use the little cutia-tooth knife (see p. 115). Since the yâritanaçík is extraordinarily light, the men like to use it on their

/52 cont./

854
287
[824]
[413]
[412]
854
[171]
[184]
[114]

9. Band for Carrying Children

The band for carrying children -- okomakuá -- is made from the bast of an embira tree (Daphnopsis brasiliensis Mart.). For this purpose thin trunks are cut down by the men. Then the women remove the bark and /53/ with a bast beater -- xamotimá -- (a piece of wood 30-40 centimeters long, from the embira tree) beat on the trunk for 1-2 hours. Through this the bast -- uarimaxfke -- becomes loosened, soft, and pliable, so that finally it can be easily peeled off the trunk -- pekehfk -- (Fig. 23a-c). Then the two ends are slipped into each other and sewed double with a thread of Bromelia fibers or cotton. The holes are pierced beforehand with the little cutia-tooth knife (see p.117), and then the thread can be drawn through without effort.

The carrying-band is always slung over the right shoulder so that the right hand remains free for work, and it ends at the level of the left hip (Ill. 15), which gives the sitting child additional support if the mother puts its legs around her body.

This carrying method is very widespread in South America and is also employed by tribes that do not use the carrying-band (292). Among the Xiriâna Koch-Grünberg does not seem to

292. See, for example, Koch-Grünberg 1923a, Pl. 45.

have seen such carrying-bands, for he says nothing about them.

10. Receptacles

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824
[92]

As receptacles, the fruits of the Bignoniaceae (Crescentia cujete Lin.) and Cucurbitaceae (Cucurbita lagenaria Lin. and Cucurbita idolatrica Lacerda = jamaru), which offer a variety of shapes (ball shape, bottle shape, cucumber shape, and others), are used principally.

These vessels in general are called -- horotoká --, except for those of the jamaru fruit (Fig. 24), which are called -- nhapotofma.

Surára
Pakidái
Shiriana
Waica
Karime

/53 cont./

415 Fruits cut in two furnish correspondingly shaped bowls --
824 maraká. In order to cut them, men or women tie curauá fibers
around the fresh fruit and then scratch along this with the little
[386] cutia-tooth knife (see p.117). On the inside all the bowls are
given a black coating, which is made out of the charred wood of
the pupunha palm and the oily yolk of turtle eggs or cayman fat.

415 A few families also have black, thick-walled, undecorated
323 clay vessels -- haboká -- with a round bottom, which are poorly
[438] fired and break easily. I was told that they come from the Xiriána (293).

293. The name, too, is almost the same among the latter -- "hapóga" -- (Koch-Grünberg, 1928, p. 304).

for the Surára and Pakidái do not practice pottery themselves.

323 On the other hand, this craft is also familiar to the Waiká and
184 Karimé, and, to be sure, they make vessels of the same shape as described above (294) (295). /Fig. 24 appears here./

294. Zerries, 1956a, p. 184.

295. Salathé, 1931/32, p. 302 and Fig. 12.

123 My pots and pans of aluminum, brought along as gifts, were
415 highly prized by the women of both tribes, as were empty gasoline cans and food cans.

/54/

11. Tools

412 Primitive tools, which consist of teeth, tortoise shell, bone, taquara, bamboo, and wood, are few.

[192] The most important one, and reserved exclusively for male
[237] use, is a small knife made out of the sharp tooth of the cutia (Dasyprocta aguti L.) -- tomenáke --, which every Surára and Pakidái wedges under his left upper-arm cord while traveling and on hunting and war expeditions (Ill. 31) (296). The lower part

[301]

296. The women use the cutia teeth as ear ornaments (see p. 86).

Surára
Pakidái

/54 cont./ The lower part
412 of the tooth is firmly anchored with tree resin in a tubular bone
[314] of the jacamim (Psophia crepitans L.) -- nyapín -- which at the
[230] same time serves as the handle and is called -- nyapínmatáz --,
[192] and this part of the shaft is additionally wound with a thread of cotton or curauá (Bromelia fiber) (Fig. 25). /Fig. 25 appears here./

With this small knife the arrow cane is bored to insert the tip, a wooden shaft, or the notched hand-end. The crudely carved bamboo points are improved and sharpened with it, as

[415]
[824]

Fig. 24. Jamaru fruit.

are the points of bone and wood. It is also used, however, to bore holes in the hearth, that is, the horizontal piece of wood of the fire-making apparatus, and to cut a groove at the side. The
[531] serpentine lines and zigzag designs are put on the quiver with it,
[593] and finally it is used by the men to make deep gashes on the bodies of their wives for reasons of jealousy. Almost all the women have large and small scars from this; they always showed them to me with a certain amount of pride, however, as a sign that they are, or were, beautiful and desirable.

412 Other tribes of Guiana, too, and those that in the rest of
184 South America are part of the remnants of the original stratum
[191] use these small knives. They are documented for the Waikâ by

412
184

/54 cont./

Zerries and Schuster, (297) (298), for the Karimé by Salathé (299),

297. Zerries, 1956a, p. 184.

298. Schuster, 1958b, p. 17.

299. Salathé, 1931/32, p. 306 and Fig. 16.

[237]

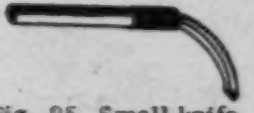

Fig. 25. Small knife made out of the sharp tooth of the cutia (Dasyprocta aguti L.).

Fig. 26. Knife made out of the ventral shell of the perema (water turtle).

[284]
[824]

and for the Xiriâna by Koch-Grünberg (300). The latter, however,

300. Koch-Grünberg, 1923a, p. 313 and Pl. 47 (9).

says that the Xiriâna lash the tooth to a wooden handle by means
000 of Bromelia fibers (301). In the same place Koch-Grünberg likewise

301. Such a knife is to be found in the Hamburg Museum für Völkerkunde und Vorgeschichte Koch-Grünberg Collection, 12.25:108).

412 /54 cont./ In the same place Koch-Grünberg likewise
171 mentions a knife with a bone handle which he acquired from an Arekuná who lived among the Guinaú on the Merewarí, but he adds: "Whether the subdivisions of the Arekuná who live deep in the interior still use such primitive tools I do not know" (302).

302. Koch-Grünberg, 1923a, p. 313 and Pl. 17 (3).

Outside Guiana this little knife is confirmed for the Guayakí (303)

303. de la Hitte, 1897, Pl. III, Figs. 4 and 6.

and Sirionó (304), among others. /Fig. 26 appears here./

304. Nordenskiöld, 1911, p. 193, Ill. 119.

412 /55/ The knife made of tortoise shell -- micf -- represents a
184 work tool for women. This is the ventral shell of the perema
[237] (small water turtle), sharpened on one long side (Fig. 26). Primarily the wild fruits of the pot tree (Lecythia longifolia) are cut with it after cooking (see p. 182).

This knife is also familiar to the Waiká and is used for the same purpose there (305).

305. Zerries, 1956b, p. 149.

For a third type of knife, which is likewise used only by women, there are the no longer serviceable lancet-shaped arrow points of bamboo -- kantaná and rahaká -- (see pp. 41/43). They are used primarily for peeling and scraping manioc tubers.

Koch-Grünberg also observed this among the Xiriána (Schirianá) (306). The investigator named also points out that the

306. Koch-Grünberg, 1923a, p. 308 and Pl. 48 (6 and 7).

Shiriana
Surara
Pakidai

/55 cont./

412 184 knives are sometimes bound to a pointed wooden handle. This strengthening, however, certainly was not added later, but rather is simply the shaft which the Xiriâna, unlike the Surâra and Pakidâi, mount on their arrow points (see p. 43).

412 462 302 For cutting hair and shearing off the tonsure, decidedly women's work, a split piece of reed sharpened on one side (taquara -- Guadua sp.) is used.

412 171 Such "knives" are also widespread among the South American Indians; Prince zu Wied-Neuwied documents them for the Botokuden (307).

307. Prince zu Wied-Neuwied, 1821, p. 9.

412 237 Another important tool is the eyetooth from the lower jaw of the wild pig -- manacoauâ --, with the inner edge of which the men smooth their bows.

[184] This tool is also used for the same purpose by the Waikâ (308).

308. Schuster, 1958b, p. 17.

412 [192] [824] For work in the fields the men use a digging stick somewhat flattened at the lower end and 2-2.20 centimeters long -- namunamutehî --, which they make out of the hard wood of the pupunha palm (Guilielma speciosa Mart.); as a substitute they also occasionally use an old, broken bow-staff.

[184] Zerries also observed the latter practice among the Waikâ (309).

309. Zerries, 1956b, p. 153.

413 462 A piece of round wood from the trunk of the pupunha palm should also be mentioned; it is used by the women as a bast beater -- xamotimâ (see also pp. 112/114).

412 177 This exhausts the use of primitive tools. Even in olden times, there were certainly not many more. During my stay among the two tribes, however, I saw them already using steel axes, as well as terçados (large bush-knives) and small knives.

Surára
Waiká
Shiriana
Pakidái

/55 cont./

The Surára acquire these articles by way of barter through their occasional contacts with the piaçabeiros (palm-fiber gatherers) on the Rio Aracá, while they are given to the Pakidái as gifts by the personnel of the Indian protection post Ajuricaba on the middle Demini. To my question as to whether their ancestors had once used stone axes (I could not discover any), I was always given affirmative replies. They also have a special name for the ax -- hanhokomá. The blade alone is named synonymously, whereas the shaft is called -- hanhokomáhitohí. Most probably the stone axes were acquired by barter, as is the case, according to Schuster, for the Waiká (310). Which tribe furnished this

310. Schuster, 1958b, p. 17.

import article could no longer be determined, but this time the Xiriána seem to be excluded as the intermediaries. Koch-Grünberg writes: "They (the Xiriána) in former times apparently had no axes at all to cut down the forest. At any rate, they did not know what to do with a stone ax that I showed them" (311a).

311a. Koch-Grünberg, 1923a, p. 307.

12. Equipment for Climbing

To climb up tall palms with a smooth trunk, such as the açaí (Euterpe oleracea Mart.), bacaba (Oenocarpus distichus or Oenocarpus /56/ bacaba Mart.), bucu (Manicaria saccifera Gaertn.), buriti (Mauritia vinifera Mart.), inaja (Maximiliana regia Mart.), paxiuba (Iriartea exorrhiza Mart.), tucuma palm (Astrocaryum sp.), and others, the Surára and Pakidái use the climbing ring -- horohoromá --, which consists of a split liana (cipó-titica) rolled up several times. The ends of the liana are wound around the ring several times and tied with a knot (Fig. 27). /Fig. 27 appears here./

/64 cont./
553 776 [782] high mountain ridges -- hekurá --, who represent the intermediaries to Poré and Perimbó, the joint Supreme Being of these Indians (see pp.197/199). The particular animal or plant whose name a child bears is regarded as a sort of "spiritus familiaris" [797] throughout its life. This is linked to the idea that the fate of the child has now become identical in essence with them; that is to say, good fortune, but also the suffering and dying of animals and plants are transferred to the like-named human beings.

553 114 191 The use of animal names corresponds to the nagualistic ideas and customs which Eduard Seler mentions in his monograph /65/ on Michuacan /Michoacán/ (326), while plant names are

326. Seler, 1908, pp. 104/05.

also included under the same aspect by the Surára and Pakidái. The name "nagual," according to Seler, is derived from the Aztec word naualli = disguise (327). In place of nagualism, however, the

327. Seler, 1904, pp. 75/76.

technical term "tonalism" may also be used (Aztec tonalli = someone's destiny, fate, soul, spirit...) (328).

328. Haekel, 1958, p. 45.

553 302 [412] [824] On the day of the name-giving the children are given a tonsure such as is worn by all adults of both sexes. It is shaved off with the sharpened side of a split piece of reed (taquara -- Guadua sp.). Simultaneously they are attired for the first time in 553 291 the hip cord of cotton or plant fibers, which they may then never remove up to the end of their lives, not even while bathing or during sleep. The cord must, of course, be renewed occasionally, but this is done in all secrecy. At the time of the donning of the hip cord by little boys, the penis is tied up, with the preputium held fast under [834] the cord by means of a loop (Ill. 22). From now on the penis must no longer hang down, for this would be an offense against good [292] form. On festive occasions a belt of cotton is also tied around children (See pp. 64 ff.).

/79 cont./

222 which can be obtained easily and without danger, for the bees are stingless. Usually they have their nests in hollow trees or in the ground. Occasionally, however, one also sees nests built in tall trees; the latter are then cut down by the men, for the purpose of obtaining the honey. The honey is scooped out of the nest with the hand or with a calabash and put into a folded palm leaf which is then tied together and taken along to the maloka. -- Birds' eggs also constitute a popular addition to the diet, as does the nourishing yolk of the eggs of water turtles; the egg white, on the other hand, is discarded because it has an unpleasant, fish-oil taste. During the dry season, especially during the months December-February, the Surára and Pakidái gather these turtle eggs in great numbers on the sandbanks of the Demini and Aracá. -- [226] Also to be mentioned are crayfish and crabs, which are pulled out of the holes in the mud of the riverbanks. -- I also observed that they eat certain kinds of frogs and spiders, as well as insect larvae, caterpillars, termites, and the hind parts of the leaf-cutter ant (Atta sp.) -- aneanemá.

241 e) Agriculture

Although agriculture among the Surára and Pakidái was introduced only a comparatively short time ago, they have already developed a remarkable system with regard to the laying out of their fields. These are always laid out circularly around the maloka. The procedure is such that, first of all, at the beginning of a dry season, October-November, a rather large piece of forest is cleared, during which it is seen to that the circular shape is [313] produced. To chop down the underbrush and the lianas, the [412] men use the terçados (large bush-knives), and the trees are felled with steel axes (367). After about two months, when the felled

[439]

367. The Surára obtain these articles of civilization from the palm-fiber gatherers by barter, and the Pakidái get them from the Indian protection post Ajuricaba on the middle Demini.

/81/

192 245 Designation of the Surára and Pakidái:

pakatarimã	pacovão
kuratá pauximí	inajá
nakaximí	São Tomé roxa
rokojá	São Tomé branca
rokomã	banana maçã (?)
parauá	caité
roórenvökákõ	banana bajé
xiahíma	Banana govêrno (375)

[124]

375. Unfortunately, I could not carry out a botanical classification of these varieties.

245 [412] [824] With the help of a digging stick made from the wood of the pupunha palm and 1.60-1.80 meters long, which has a flattened point at the lower end (Ill. 38), or a broken bow-staff, cuttings of banana trees are planted in the clearing, and after only a few months they are full-grown and bear fruit. The work of planting [462] as well as the care of the plants falls to the men, while the women help only with the harvest (376).

[184]

376. Among the Waiká, the plants are cared for by men and women (Zerries, 1956b, p. 153).

Besides the banana, the pupunha palm (Guilielma speciosa Mart.) -- komunamá -- is cultivated to a considerable extent. Cuttings are used for planting, but occasionally seeds as well. These palms, which always stand between the bananas, give the clearings of the Surára and Pakidái a characteristic stamp (Ill. 37). The trunk, 18-20 meters tall, which is covered with [481] pointed thorns -- mimicibá -- and can therefore be climbed only

Surára
Pakidái

/83 cont./

252
262

394. (cont.)
nourishment during their first and second menstruation (see p. 142), and it represents the most important item of food for pregnant women, and for several months after confinement. Among the Tapirapé, on the other hand, where the banana also represents a basic part of the diet, parents must refrain from eating this fruit after a birth. "They believe that the child would die if they disregarded this rule" /cited in English/ (Baldus, 1956b, p. 601).

[191]

252 raw. -- The mealy, nourishing fruits of the pupunha palm are primarily boiled. Then the soup is allowed to cool and a refreshing drink is obtained in this way. Before festivals all the [415] women pour it into a large, wooden trough, which is found in every maloka, so that there will be enough on hand. By means of steaming or roasting, a solid food is also prepared from them (395). --

[114]
[137]

395. Alexander von Humboldt, by the way designates the pupunha or pihiguao palm as "Pfirsich-palme" /peach palm/ and praises the delicious taste of its fruit (Alexander von Humboldt, 1860, III, pp. 281 f., 300; IV, p. 145). I cannot agree with the great scholar in this, for to me it tasted like slightly bitter potatoes. Zerries, by the way, is of the same opinion (Zerries, 1956b, p. 148).

Taioba, carâ, sweet potatoes, and sweet manioc are steamed in a pot or roasted in hot ashes without being previously washed or 252 peeled. -- Bitter manioc is scraped by the women with the ● 412 lancet-shaped bamboo knife (see p. 118) and then grated on a rough slab of granite, for they do not have grating boards (396) (397).

[177]
[123]

396. My servant Mateus, however, made them

Surára
Pakidái
Shiriana

/83 cont./

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412
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123
192

396. (cont.)
a few graters out of the sides of our empty gasoline cans by boring numerous holes in them with a nail. They were very happy over these and maintained that it was considerably more agreeable to grate on them. They also immediately had a name for this grater -- kabaricinamõ.

252
184
412

397. The Xiriâna, too, grate the manioc roots on rough slabs of granite (Koch-Grünberg, 1923a, p. 308).

252 The grated pulp is then pressed out by hand with the help of small, square strips of plaiting (see p. 112), which are rolled up (398).

398. The poison is removed from the manioc pulp in the same way among the Xiriâna (Koch-Grünberg, 1923a, p. 308).

Among the Surára I found three tube presses and among the Pakidái five, which they had obtained from the Xiriâna (see p. 112). With the flour the women bake, on large, flat granite stones under which a fire is kindled, manioc flat-cakes, which are consumed with pleasure. This food, which appeared among them only a comparatively short time ago, seems to become
273 more and more popular. The preparation of kaschirí is unknown (399).

114
177

399. Since, however, my servant, a pure-blooded Tukano /Tucano/ Indian, felt a great desire for a slight alcoholic intoxication at the sight of the manioc flat-cakes, he taught the Surára how to make kaschirí. At first they tried this unknown drink very critically. But after the first swallow their eyes shone, and they slapped Mateus on the shoulder enthusiastically and assured him again and again how good it tasted to them.

Surára
Pakidái

/12/

137
←

137
24
622
516
412
→

Ill. 37. Surára forest clearing in a circle around the large, open maloka

Ill. 38. The Surára chief Hewemao doing field work. He is holding a digging stick in his left hand.

137
481
←

114
142
302
291
516
624
→

Ill. 39. Climbing a pupunha palm with the help of climbing apparatus

Ill. 40. Poréhiwõ, war chief of the Pakidái (right), and my guide, Mateus Dias, a pure-blooded Tukano Indian from the upper Rio Negro. A Pakidái youth is squatting in the background.

/202 cont./

372 They make fire by the rotation method, and the sticks which they use in this process are carried with them tied to the quiver (cf. Barker, 1953, p. 462, Fig. 6). If the camp is situated at a relatively short distance, the women carry a piece of lighted firewood upon which they blow on the way so that it will not go out. Fire is a source of light and heat in the rancherías, and they keep it burning all night long to protect themselves from the cold, from evil spirits, and from dangerous animals.

283 The Sanemá women spin cotton by means of a spindle which they roll on the thigh. The cord is twisted with three threads.

286 301 294 352 They do not weave and use the thread only to make ornaments, guayucos /loincloths/, and sometimes hammocks /hamacas/ and güenepes. The baskets that they manufacture are well made and are very useful for carrying the products of the conuco, firewood, and sometimes large pots made of baked clay; the method that they employ to make baskets (twining) is primitive, common to the marginal peoples of South America. The Sanemá make pottery vessels, conical in shape, but their method is very primitive. The most common container is the gourd.

285 [323] 323 415

● 412 [237] A cutting implement (gouging tool) which is widely used is the knife made with agouti teeth. It is used exclusively by the men and is made by attaching an incisor of the rodent to a small stick 10 centimeters long by means of gum and a fine plant-fiber. The men carry it in the quiver, under their arm ornament, or, as we saw on the upper Ventuari, in the opening of the ear lobe. With this instrument they make arrows; it is used to mount the point or to open the lower end of the shaft where the peg, provided with a groove for the bowstring, is inserted. The groove is also made with the tooth knife. Becher (1960, p. 54) reports that jealous Surará and Pakidai men sometimes use it to wound their wives, and an informant from the Erebato told us that they also used it to gouge out the eyes of enemy men who had been captured and identified as murderers of a member of the group. The Indian said that once they have gouged out the eyes they free their victims, who die a few days later in the forest. The knife is sharpened with a stone. This type of primitive knife has been found in most of the Yanoama subtribes: Waika

[593] [727] [184]

/202 cont./

412 [184] (Zerries, 1956a), Casapare (Koch-Grünberg, 1923, p. 313 and Pl. 47), Karimé (Salathé, 1931-32, p. 306 and Figure 16), Surará and Pakidai (Becher, 1960, p. 54). The handle of the knife, [171] relatively short, may be made of wood or of a simple piece of bone; it is in style also among the Guayakí (Hitte, /203/ 1897, Pl. III, Figures 4 and 6) and the Sirionó (Holmberg, 1950, p. 14), both tribes with a primitive culture.

[237] [179] In order to smooth their bows, the Sanemá use the tusk of a peccary. Before the introduction of iron axes they used stone axes, which are still found among them, although rarely.

The most important weapon of the Sanemá is the bow and 411 arrow. The bow, plano-convex, 2-2.10 meters, is made of [324] macanilla wood. In the middle it measures 2-3 centimeters in width, which tapers to 0.5 centimeter at the ends. The bowstring is made of plant fibers. The different classes of arrows which they use are distinguished according to the different points that they have. Their total length varies between 1.60 meters and 2.40 meters (cf. Méndez-Arocha, 1960, pp. 54-60). This latter trait of having arrows of this length is another characteristic of the nomadic Indians of the Tropical Forest. The arrow points vary according to the game that they wish to hunt. The bamboo point, lance-shaped, is for large game; for medium-sized and small animals they use arrows whose point is made of monkey bone. There is another point of wood which they poison with curare and which they use as a weapon of war (cf. Koch-Grünberg, 1923, Pl. 47; Becher, 1960, p. 18). The lower part of the arrow is provided with two halves of a turkey feather, in the manner typical of the tribes of Guayana.

[627] Another weapon for combat is the club 1.50-2.50 meters in length and of heavy wood, which they use to settle local fights and which reminds one of the clubs of the Botocudo of Brazil.

291 Sanemá dress is the simplest. Both sexes wear a cord tied about the waist. The men carry the penis fastened up by the prepuce. Among the Nabudub we saw several women who wore no clothing other than the above-mentioned cord; most of the Sanemá, however, use a guayuco of cotton thread, dyed with onoto and in the same manner as the type Becher describes (1960,

4. Wilbert--75 E-4, 5 (1958) 1963 SQ18 Yanoama SQ18
Sanema

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Sanemá Indian of the upper Ventuari preparing the shaft of an arrow, using a typical "knife" made out of a rodent's tooth mounted on a small stick.

6: Vinci T-5 (1950) 1959 SQ18 Yanoama SQ18
Sanema

Barbasco is a kind of liana which can grow to impressive dimensions—attaining a stem up to eight inches thick. The Indians cut it in the forest and collect a large pile together at a convenient place for pressing. Their press is made from one of those dead trunks of hardwood which are found in such quantity in the forest and some wooden clubs specially cut for the purpose. The liana stems are pounded and then done up into bundles so that they can be easily taken to the place to be fished, which may be some way off. Here they are immersed several times in the river, releasing a milky juice which gives the water a whitish opalescence. The juice of the liana reduces the air content of the water through oxidization, and the fish very soon come floating up to the surface—asphyxiated but not poisoned.

This procedure is a very common one among the Indians, whose fishing follows a two-year cycle—this being the minimum time needed for each stretch of water to become repopulated after the use of barbasco. It goes without saying that this extract of liana loses its efficacy in anything bigger than a small stream. Nevertheless, in times of scarcity the Indians will attempt to fish medium-sized rivers in this way, banding together to collect huge quantities of liana. The fish taken are then smoked and wrapped in banana leaves, after which they will keep for months.

Auai and his men had to go far afield with their barbasco before they found a suitable place. The probability was that the Shirians had already been at work, unknown to anyone, near the source of the Canaracuni. We therefore left him to it after all, and returned to camp early one morning, just in time to meet the plane that was circling the field.

VI

On Sunday, the 24th June, a big plane came into sight over the rim of the Sarisariñama mountains—towards the east where they merge into the Socsoc range. It swooped down to about three hundred feet and then went off without giving any signal. The excitement among the Indians on the spot—Luis Antonio was one of them and he explained the nature of the machine to his kinsfolk—was doomed to disappointment. And time and again this story of the aeroplane continued to arouse our hopes, only to dampen them once more.

A week later it appeared, at the same time—so suddenly and unexpectedly

6: Vinci T-5 (1950) 1959 SQ18 Yanoama SQ18
Sanema

and brought to us already cooked, in a wrapping of some appropriate green stuff—a dish beyond compare. At times there was so much meat (cooked and eaten without salt or spices) that we willingly turned to fruit again. There was no lack of that either.

When a tapir or a number of peccaries have been killed and there is too much meat to be eaten up at once, the Samatari smoke it on a hurdle supported by four stakes driven into the ground. A fire is lit underneath and kept going all night—to the accompaniment of the medicine-man's ceaseless chanting. In the morning the pieces of meat, looking completely charred, are wrapped in wild banana leaves and entrusted for transport to some little woman who hoists them up along with the babies on her back.

I have also seen a sloth being smoked. No gentler animal exists in the world. She moves at a speed which never exceeds a few yards a day, and lives hanging on the trees with her young ones clinging to the hairs of her back. They captured one alive, and with the machete chopped off the three nails of its hands and feet, to make scrapers and 'bodkins' for various uses. Deprived of her only means of defence, the sloth kept moving slowly along, with a resigned, human expression which quickly won our sympathy. But not the Samatari's. To them, a sloth is an excellent target for archery practice, because it will remain in the same position—clasping a pole, for instance, without moving—just the sort of thing you want for a target. The arrows whistled past the sloth's wet nose, but its face showed no change of expression; then some struck it, but not in a vital part, and its fur reddened with blood. The arrows did not penetrate deeply because they were only practice ones, with worn tips. Had I had a gun I would have shot it, for there was such a look of gentle reproof in the little animal's eyes that it became unendurable. But the gun was a long way off, and our five remaining cartridges had been the subject of so much calculation, that perhaps after all I wouldn't have ventured to expend one on this four-legged Saint Sebastian. Soon, however, too many arrows had struck, and before the youngsters could get it to play with and drag it about in the dust, still alive, I asked for the machete. Laughing, in order to evade Samatari susceptibilities, I struck it one hard blow on the head which sent it straight to the smoking-tray.

We now had a definite plan laid and were spreading propaganda to make it possible, Uarema and the Guayca Indians being our agents. We had now made the descent of the entire Aracoa and part of the Uraricoera, and before reaching

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241 The land is cleared by first pulling out all the small plants and stems; then the trees which reach a trunk diameter of around 25 centimeters are cut with a machete, and finally the large trees are cut down with an axe.

[313] Sometimes they climb the tree and attach a liana to it so as to be able to pull it to direct its fall.

After the trees have had sufficient time to dry out on the ground, they cut off the branches and pile them up with the underbrush in order finally to burn them. Owing to the abundance of rainfall, it is impossible for them to wait for a dry period. I have seen them burn the weeds in their conuco after it had rained heavily the night before. Sometimes they must bring dry firewood in order to make the damp weeds burn.

An old woman told me one day: "These people of today [412] [178] have it easy. We did not have machetes and axes in former times. Fire was our principal tool. /445/ We had to carry a lot of firewood to pile up around the trees in order to bring them down by fire."

412 174 [192] There is an indication in their language that at one time they used stone axes before being able to acquire metal axes and machetes. They use the same word, "boo," to designate both the machete and a certain stone which they use for grinding the "yopo" powder. This stone has the proper form for making an ax out of it, if a handle were attached to it. Nevertheless, the relationship between these objects, if there was one at one time, is unknown to the present generation of El Platanal.

241 412 A bow without a string or a similar stick is the principal instrument which they use for planting. They use it both to loosen the small banana stems for replanting and to open holes in the ground for holding practically any kind of seed.

249 Tobacco is planted first in a garden bed and then transplanted. The small plants are protected from the sun for a few days by means of platano leaves put on a covering for shade.

241 Sometimes a few stakes are fixed in the ground to indicate plantings near the paths, thus keeping the seeds or young plants from being stepped on.

/449/

Preparation of Food

251 To keep meat from spoiling, it is first dried directly over the fire. Then it is kept on a rack over the fire, perhaps for several hours, but frequently all night. After this, it is placed a bit farther from the fire, but where the air will keep it dry, although not necessarily warm. I have seen meat kept for some ten days in this way, and doubtless it would have lasted longer had it not been eaten.

252 Meat preserved in this way is still regarded as raw and must be cooked in a pot before being eaten.

Small animals are cleaned, washed, and then boiled whole in a pot. If the animal is large, it is cut up into pieces small enough to fit into the pot. The custom of leaving the skin and [194] hair on them while they cook is perhaps a survival from the time when they did not have knives for skinning them. A string or piece of bark is tied to each piece of meat in order to be able to take it out of the pot to turn it. From time to time they take the meat out in order to prick it many times with a stick so that it will cook more quickly.

When it is finally ready, the head of the family, or the owner of the meat, shares it or divides it into portions which he distributes among his relatives or friendly families.

462 252 The task of cooking the meat is man's work. He is the owner of the pot, does the hunting, looks for the firewood, and divides and distributes the cooked meat. (Sometimes he sends a boy to deliver the meat to some family on the other side of the circle of dwellings.)

313 462 [412] The gathering of firewood for cooking food other than meat and for keeping the family warm at night is woman's work. For this reason the women use the ax much more than the men do.

252 Green platanos are generally peeled and placed directly over the embers, turned a few times, and /450/ taken off when they are found ready to eat. Or they may be placed on a live fire to be cooked, but without being peeled, in order that they may not be blackened. If it is necessary to cook a large quantity of green platanos quickly, they are peeled and boiled in a pot.

/456 cont./

Preparation of Basic Materials

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321 The Guaika /Waica/ make their arrow points out of bone. When they obtain a small piece of bone, they quickly transform it into a good arrow-point for killing birds. The long bones of legs and arms of monkeys are broken, and the sharp points which generally result have a form similar to that of arrowheads, are worked and finished, with the rest being thrown away. To give them shape, the points are scraped with knives or machetes and rubbed on some stone.

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321 I also saw a whistle or a flute which seemed to be made out of bone or out of a quill of large size.

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[824]
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[412] The Guaika make their bows out of wood. They generally select the wood of the "pijiguao" palm. They give it a rough shape, using the machete. They achieve the final form by scraping the piece with the jawbone of a wild pig, the teeth constituting the cutting edges.

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[239] They do wood carving with a small knife, which consists of the tooth of a rodent. With this tooth they manage the fine work of putting notches in the arrows. They also shape bamboo arrow-points and the oblong lower part of the apparatus for making fire.

They devote as much as half a day to carving the handles for their axes and machetes. They use the machete to shape them.

323 The Guaika make their pots of mud. The clay is obtained in specific places. This frequently requires a day or more of travel. Once the clay has been brought to the settlement, /457/ they go about extracting the stones from it while kneading it, moistened, for several hours. The pot is begun by taking a ball of mud which is given the shape of a bowl. Then they go on adding rings of mud which they join to the pot. The vessel is scraped and shaped with a piece of broken totuma /fruit of the calabash tree/. During the process of the scraping, they go on increasing the size of the pot. They keep the clay damp and plastic, spitting on it from time to time. After this they put the pot out to dry in the sun and finally bake it in the fire. The vessel comes out of

/462 cont./

Fire

372 The Guaika /Waica/ use the system of simple rotation to make fire. This consists of a piece of soft wood, flattened on one side and rounded on the other, about four centimeters wide at one end, and whose tapering shape ends in a blunt point at the other end. With the tooth of a large rodent they make a circular cut in it near its broader end, and in this is inserted a slender stick (from 30 to 40 centimeters /sic/ in diameter at its base). This stick is held between the palms of the hands and given a rotating movement until a spark burns in the wood dust which has been formed by the rotation of the stick in the hole made in the board. (See Fig. 6.)

[237] [412] [824] /463/ The tapered piece of soft wood is of cacao, in which several successive holes can be made, and each hole can be used several times for lighting a fire.

In general there is someone in the settlement who has a fire lighted, so that when some native needs fire he obtains it there. In order to carry fire a short distance, two or three lighted sticks are tied together, forming a fagot. When they travel at night, they carry lighted torches to protect themselves against animals

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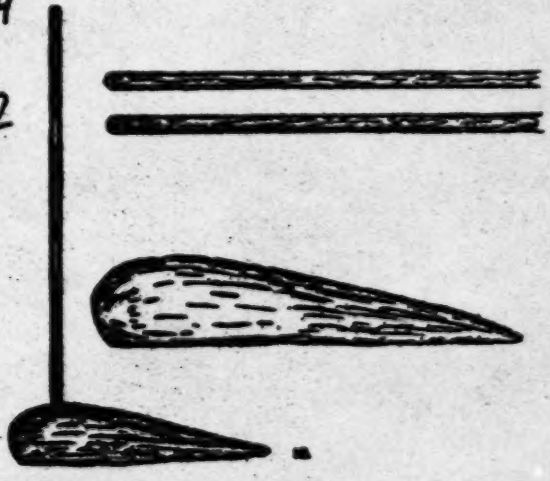

/Fig. 6/

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721 In December of 1953 the Shibaatía-tjeti came back to make
123 another raid, accompanied by the Comishibueitjeti. But the Majecototjeti had camped outside, on the other side of the river. Some of the Shibaatía-tjeti approached us carrying an arrow, but leaving their bows in the woods with the other men. They explained that they were friendly visitors and asked where the Majecototjeti were, because they were supposed to visit them. But their black war-paint showed that they had come on a raid. (Visitors are painted with red or mulberry color, but not black.) When they saw that they were not going to get us to tell them where the people were, they asked us to give them matches and fishhooks. They gave us in exchange some knives made of tooth. After this things calmed down, but from this time on the people of Majecototjeti have lived inside their palisades when they were near their main farm.

[302] [574] [822] [412] [361]

166 The people of Majecototjeti started a new farm called
361 "Joitja-tjeca" to the south of the Orinoco, where they could
721 live without palisades and feel safe from raids by the Shibaatía-tjeti. The Majecototjeti did not plan any retaliatory raid, because they said, "None of our men have been killed."

727 In September of 1954 I had camped with the Majecototjeti at
361 their new farm to the south of the Orinoco River. Everybody was
[114] calmer there, and they seemed to feel freer than at any time since the first raid by the Shibaatía-tjeti had put them on the alert almost a year before.

222 Anyone who wished to do so could go out and gather fruit,
[226] fish, or hunt crabs, even in small groups. The boys were having
[411] fun shooting at the fish in the many streams with their little arrows
[859] of split palm shoots and bows made of a curved stick and a piece of twisted bark. It was the season of the moriche fruit, and the /157/ women went out almost every day and came back carrying
726 baskets full of this fruit. One afternoon about 1:00 P.M. some came to the aldea and said that a great number of tracks had been seen not far from the aldea. A group of men went out to investigate.

9:Grelier K-5 (1951) 1957 SQ18 Yanoama SQ18
Waica

supple wood and well over six feet long, it is very powerful. With it the Waïka can shoot an arrow more than a hundred yards and can hit a *pauji*—a bird about the size of a turkey—at forty yards. Normally two or three arrows are carried and they are as long as, if not longer than, the bow itself. The shafts are made of reed which, Cardona said, is specially grown for the purpose on their plantations, and are feathered by falcon's feathers. The feathers are meticulously tied in a near-perfect spiral with thread of forest cotton or morisco palm fibre. Each arrow has a different head specially adapted to a particular purpose. Spare arrow-heads are carried in a quiver in which also is carried fire-making material to protect it from the damp.

The quiver is a simple bamboo case to which are also tied a firestick and a number of little knives made from the incisors of a large rodent called a capybara. It is carried on the back by means of a string slung round the forehead.

Such comprise the simple impedimenta of the Waïka on his journeys through the forest. The women, who accompany their mates on their many ceaseless wanderings, presumably have their own burdens to carry, but we saw nothing of them until we visited our first native village on the next day.

As we went up-river we came across the remains of a rude bridge which had formerly spanned the two hundred yards of river and which had been carried away by the flood waters. It was the biggest bridge we had seen although we had passed a number of lesser ones fashioned of lianas spanning the tributaries. On the bank where the bridge had been were some twenty natives and a handful of children.

"*Apo! Shori! Apo!*" they greeted us.

We knew from Butrón that, though his men were accustomed to replenish their banana stocks at this place, they had so far never been allowed to visit the village hidden somewhere in the forest.

The Waïka lives on wild fruits, fish, meat and the produce of plantations adjacent to his villages. Most of his time he spends wandering in the forest and his fleeting appearances at his village occur usually only when natural resources fail or when he has to defend himself against an enemy horde. He knows

9:Grelier K-5 (1951) 1957 SQ18 Yanoama SQ 18
Wai'Ca

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The Waika always carries with him his little knives made of a rodent's incisors. (*Photograph by J. Grelier*)

Below: Pierre Ivanoff and one of our Waika friends. (*Photograph by J. Grelier*)

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[p. 112-D]

9:Grelier K-5 (1951) 1957 SQ18 Yanoama SQ18
Waica

Barker told us that it was no more than a temporary stopping-place on one of the jungle trails, no family ever remaining for more than a week. And so we found on our various return visits. The inhabitants were always different and their numbers varied considerably. Barker could not tell us how frequently these villages occur in the forests. He said he had been to only one other during his seven months' stay.

Every home possesses two or three calabashes, gourds and baskets, all dyed with ochre and some decorated with macaw or toucan feathers. All such objects of daily use have loops of string tied to them by which they can be hung from the hut's roof. Each family also has its little knives of capybara teeth. Firesticks are kept carefully packed away to keep them dry during disuse, as fire is always available from glowing embers that are never allowed to go out. We saw a number of baskets which women carry on their backs, but could not discover what they were used to carry—probably household utensils in the course of their journeyings. I could find no Waika musical instrument, but in one hut, the only one with no hammock in it, I came across a sort of fibre cape hanging from a beam. As this was the only garment of any sort that I saw, it may well have been a ritual robe.

In every house there was at least one fire, and joints of unskinned peccary and branches of green bananas hung from many rafters. In an unornamented earthenware jar shaped like a bell we saw a peccary's head boiling whole with all its hair and skin. In another hut a child was eating a small alligator which had been grilled on the embers.

The Waikas do not know salt and spat out the little we gave them in disgust. We thought that perhaps the huge quid of tobacco which the men, women and children keep under their lower lips might perhaps compensate for this deficiency. As with the Guaharibos, the women make up the quids every morning, impregnating them with their own saliva before passing them on to their mates.

Barker said he had never known Waikas to build or use any sort of river-craft—not even a raft. He told us that the

[Paruritawä-tedi Group]

It will be immediately apparent that the Shamatari village histories are more complicated than the one outlined for the Namowei-tedi. This stems from the fact that the Shamatari villages had reached a large size by 1900 and began splitting into smaller groups earlier, in terms of the data I collected, than did the Namowei-tedi. In other words, the splitting that characterized Namowei-tedi's population from about 1940 to 1955 was occurring in the Shamatari population in 1900. Although I do not have census data on the numerous Shamatari villages that subsequently emerged from the two initial groups, I suspect that the numbers of people involved are significantly larger for the Shamatari village histories. Two factors seem to be the cause of this phenomenon. First, the Shamatari villages had access to steel tools in considerable numbers before Namowei-tedi's ancestral population did; my informants asserted that their first source of steel tools was the group called Shihowä-tedi. Presumably the size of the populations involved is a function of their agricultural potentials, and the Shamatari apparently expanded earlier than the Namowei-tedi because they had access to steel tools sooner. Secondly, the Shamatari population expanded unopposed into virgin territory, whereas the Namowei-tedi expanded into territory already occupied by other Yanomamö; it is significant to note that when the Namowei-tedi ultimately moved into unoccupied territory, their population seems to have increased, and the first split occurred only after virgin territory was colonized.[1]

[1] I am unable to explain how this affects demographic variables, but my data suggest that Yanomamö populations expand more rapidly when they colonize virgin land.

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Summary

Tables 5 and 6 broadly summarize the movements of the five villages. As the details of the text indicate, considerably more village movement goes on than can be included in tables of this sort. The micro-movements, however, merely express in greater detail what is immediately apparent from an examination of Tables 5 and 6: the Yąnomamö abandon their gardens and move to new locations because of raids from other groups. In only one instance was the movement of a village stimulated by economic considerations: site 4 was abandoned by the Namowei-tedi because of poor soil. Another exception was the abandoning of Barawä (site 10) by the Bisaasi-tedi in 1959. They moved to the mouth of the Mavaca River to gain access to steel tools, marking the beginning of their sustained contact with foreigners.

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The tables also show that there were ten village splits relevant to explaining the origins of the five villages considered in this chapter. Five of these splits were due to feuds over women. In four of the cases the factions that were involved immediately entered into hostilities with each other. The recent split within Patanowä-tedi, discussed in the text (pp. 188-89), again over a woman, is not included in Table 5, as the refugee group did not form a new village of their own. Three village splits in Tables 5 and 6 developed out of minor feuds, usually over women, brought about by large village size. In one case, the factions ultimately entered into hostilities with each other, whereas in two cases the factions still remain on friendly terms.

11: Chagnon E-5 (1964-1968) 1968 SQ18 Yanoama SQ18

black, heavy, and very brittle. It breaks easily, but the pieces are used by the men as grinding surfaces for their drug manufacture, or as baking dishes when the women make cassava bread. As we shall see below, only a few villages make the clay pots and trade them to the members of other groups.

The most distinctive feature of Yąnomamö technology is that it is very direct.[4] No tool or technique is complicated enough to require specialized labor or raw materials. Each village, therefore, can produce every item of material culture it requires from the jungle resources immediately around it. That is, the simplicity of the tools, the processes of manufacture, and the distribution of resources are such that each village can exist independently of its neighbors as far as technological requirements are concerned. Nevertheless, some specialization in trade and manufacturing does occur, but it seems to be more closely related to the development of political alliances and is therefore discussed in a later chapter. I will describe the material culture at this point and relate it to the over-all adaptation later in this and following chapters.

WEAPONS Wood for bows is obtained from two species of palm tree, one that grows wild and one that is cultivated.[5] The bow is very heavy because palm wood is extremely dense. One cannot, for example, drive a nail into palm wood. The fibers that go into the thick bowstring come from the inner bark of a tree; these are twisted into a cord by rolling them with the palm of the hand against the thigh. The cord is so strong when it is new that it can be used as a hammock rope, but it deteriorates with age and must be replaced periodically. The bow itself is shaped with the lower jaw of a large, wild pig. The canine teeth in the pig's lower mandible are worn to razor-sharp edges by chewing and make magnificent cutting tools; the bow stave is held vertically and the mandible is planed up and down the surface, each upward stroke shaving off a fine layer of wood. After much labor and patience, the bow is completed. It has a circular or oval cross section and is very difficult to draw. Most Yąnomamö bows would compare favorably to our best hunting bows in strength.

Palm wood is also used for one type of arrow point. A splinter of palm wood about 15 inches long is smoothed down to a fine point, and several lateral grooves are cut into it along its length. This is done so that the point will break off in the body of the target. This type of point is covered with curare poison, which slowly dissolves in the animal (or man) after the point has broken off. This point is used most frequently for monkey hunting, as monkeys tend to grab hold of branches and tree trunks when they are wounded. The curare relaxes their muscles, and the monkeys sooner or later fall to the ground. Unless the point were coated with curare, the animal might die high in the treetops and could not be easily recovered. The Yąnomamö also carry large supplies of extra palm points in their bamboo quivers since these points break whether or not the arrow strikes the intended target. This type of point is manufactured in large quantities in several villages and is traded to other groups.

The curare vine is also collected wild from the jungle. It is soaked in hot water to leach out the active ingredient. The water containing the poison is then painted onto the palm-wood points over glowing coals; the water evaporates, leaving a brown, sticky

[4] For more details on Yąnomamö material culture than are given here, see Becher (1960) and Zerries (1964).

[5] The cultivated palm, *pijiguao*, produces a desirable fruit. It is cultivated for the fruit, but the wood of dead palms is used in bow manufacturing.

278 layer of poison. Sometimes other ingredients are added to the poison to make it stickier and less soluble. Without these ingredients, the poison would be washed off by the rain. As an extra precaution against this, some men wrap a leaf around the curare point after it has been attached to the arrow.

415 411 824 438 239 Arrow-point quivers are made from 2-inch bamboo sections of about 18 inches. The quiver is essentially a tube of wood with a natural joint serving as the bottom of the case. The bamboo grows wild in large stands, and some villages specialize in collecting it, making quivers, and trading them to other groups. A piece of monkey, snake, or jaguar skin, molded to fit over the top prevents water from getting into the tube. It usually contains a dozen or so extra arrow points, fibers for fastening the points to the arrow shaft, a ball of resin used as adhesive, a few splinters of bone used to tip one kind of arrow point, and, occasionally, a magical charm. A fiber or cotton string is tied around the bamboo tube near its top, and a loop is fashioned so that the tube can be worn around the neck. It hangs down the middle of the back.

372 824 The Yąnomamö attach their fire drills and a pair of agouti-tooth knives to the outside of the bamboo quiver. The fire drill is made from the wood of the cocoa tree and consists of one or two 20-inch long, slender shafts, circular in cross section, and a 12-inch long lanceolate-shaped piece of cocoa wood into which have been worn several holes. The latter piece of wood is placed on the ground and held firmly in place by the foot. The tip of the slender shaft is placed into one of the holes, and the shaft is twirled rapidly with the palm of the hands; the heat of the friction ignites the wood dust that results from the spinning tip, and this is immediately transferred to some cotton tinder. The men usually work in pairs to start a fire, as the dust cools off by the time a single man can get his hands back up to the top of the slender shaft to begin another downward twirling motion.

412 237 The agouti-tooth knives are manufactured from the lower incisor of the agouti rodent. The incisors are long, slender, gently curved, and very sharp. The tip of the incisor is shaped like a wedge and is frequently indented. The exterior part of the tooth is much harder than the pith so that a very sharp edge protrudes slightly above the softer, decayed dentine. The Yąnomamö keep the dentine worn down by periodically "sharpening" the tooth; this is accomplished by cutting into a particular kind of reed, which apparently contains a corrosive ingredient that attacks the dentine but does not affect the enamel of the tooth. The base of the tooth is fastened in a short piece of wood 314 284 by a resin adhesive and a fiber wrapping. The completed knife is as sharp as any steel chisel, but because of its small size, its usefulness is limited. It is primarily used to whittle lanceolate arrow points from bamboo, a very time-consuming job.

226 The jungle also provides another kind of poison used by the Yąnomamö to kill fish. The men select a small stream, dam it up, and put the juice of a vine into the water. This stuns the small fish, which then float to the surface where they are scooped up by the women either by handfuls or with loosely woven, shallow baskets (see Fig. 2-2). If the woman is in the middle of the stream, she empties the contents of her basket into her hand and then stores the handful of squirming fish in her mouth until both the basket and her mouth are full. If larger fish are caught, the women bite them behind their heads to kill them and toss them out on the bank. The first one in the stream takes a chance on locating an electric eel; if she is shocked, the others try to locate the eel with sticks and kill it.

11: Chagnon E-5 (1964-1968) 1968 SQ18 Yanoama SQ18

"Razor grass"—a reed—also grows wild in the jungle. It is used by the Yąnomamö to cut their hair and to keep their tonsures cleanly shaved. A sliver of this reed is wrapped around the index finger in such a way that the sharp edge is exposed. The practiced hand can shave a head bald in a matter of minutes and with no more pain than would come from using a dull steel razor blade. This grass is also found around some of the villages, but appears not to be cultivated.

HALLUCINOGENIC DRUGS Another useful plant provided by the jungle is the *ebene* tree. The inner bark of this tree is used in the manufacture of one kind of hallucinogenic drug. The bark is scraped from the trunk after the exterior layer of bark is removed, or is scraped from the inside of the bark surface itself. This material, which is fairly moist, is then mixed with wood ashes and kneaded between the palms of the hands. Additional moisture is provided by spitting periodically into the pliable wad of drug. When the drug has been thoroughly mixed with saliva and ashes, it is placed on a hot piece of broken clay pot and the moisture driven out with heat. It is ground into a

Fig. 2-2. Woman fishing in a dammed stream that has been poisoned by the juice of a wild liana. The poison is introduced upstream by the men, and the stunned fish are collected in baskets by the women.

11: Chagnon E-5 (1964-1968) 1968 SQ18 Yanam SQ18

276 [412] powder as it dries, the flat side of a stone axe[8] serving as the grinding pestle. The dried, green powder, no more than several tablespoons full, is then swept onto a leaf with a stiff feather. The men then gather around the leaf containing the drug, usually in the late afternoon, and take it by blowing the powder into each other's nostrils (see Fig. 2–3). A small quantity of the powder is introduced into the end of a hollow cane tube some 3 feet long. The tube is then flicked with the forefinger to scatter the powder along its length. One end of the tube is put into the nostril of the man taking the drug, and his helper then blows a strong blast of air through the other end, emitting his breath in such a fashion that he climaxes the delivery with a hard burst of air. Both the recipient and the blower squat on their haunches to do this. The man who had the drug blown into his nostrils grimaces, groans, chokes, coughs, holds his head from the pain of the air blast, and duck-waddles off to some leaning post. He usually receives two doses of the drug, one in each nostril. The recipient usually vomits, gets watery eyes, and develops a runny nose. Much of the drug comes back out in the nasal mucus that begins to run freely after the drug has been administered. Within minutes after the drug has been blown into a man's nose, he begins having difficulties focusing his eyes and starts to act intoxicated. The drug allegedly produces colored visions, especially around the periphery [187] of the visual field, and permits the user to enter into contact with his particular *hekura*, miniature demons that dwell under rocks and on mountains. The man begins to chant to the *hekura* when the drug takes effect, inviting them to come and live in his chest.

245 276 The Yąnomamö also cultivate a tree, *bisioma*, that produces hallucinogenic seeds. These are prepared in exactly the same manner as the noncultivated drug.

322 396 TROUGHS AND CANOES The Yąnomamö use the bark of another kind of tree to make a trough and a crude canoe, both of which are nearly identical in shape, size, and method of construction. The tree is beaten with clubs to loosen the bark. The bark is then removed in one piece and hauled back to the village. The ends are heated in a fire to make them pliable and folded back to make the ends of the container. They are held firm by lashing two sticks together, pinching the folded bark into a flat-nosed basin. The interior bark surface becomes the exterior surface of the soup container. If the container is to be used as a canoe, a crude framework of sticks is added to the inside, giving 501 it more stability. The craft is so crude and heavy that the Yąnomamö generally do not use it for any purpose other than the trip for which it was intended, usually a downstream trip, since it would be almost impossible to move against a current in this rough craft. It is easier to walk than to try to pole the canoe upstream. The canoe, hence, is usually discarded after it makes its maiden voyage. Another will be made when it is needed.

415 574 264 The container is pinioned to the ground with stakes if it is to be used as a soup trough. Each time a feast is held, one or more of these bark containers is made in front of the headman's house, filled with the boiled ripe plantain soup, and frequented by the hungry guests, who dip out the soup with gourd spoons. The trough is thrown on the village rubbage heap after the feast is over.

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[172] [8]They find the stone axes when they make new gardens, explaining that the spirits left them behind for the Yąnomamö to use. This area was occupied in the distant past by tribes whose relationship to the present Yąnomamö is uncertain.

removed and laid along the ground in the direction of the burrow to measure the distance from the entrance. The men began digging at the end of the vine and located the asphyxiated armadillo on the first attempt.

The jungle provides many other kinds of foods and products too numerous to mention. Some, like vines and lianas, are very useful and commonly employed in basket-making; others, such as edible mushrooms, crabs, pigments, and decorative plant products, are less significant, and exploited only sporadically. Despite the amazing variety of food products to be found in the jungle, however, the Yąnomamö could not exist for any substantial period of time on collected foods only: they rely heavily on their cultivated crops. The tropical forest is much less productive and reliable than one would imagine. The most abundant foods, palm fruits, are seasonal—a group of people could only rely on them for a few months of the year, during which time some 80 group members would have to forage over a wide area to obtain sufficient palm fruits to keep everybody well fed.

Game animals are not abundant, and an area is rapidly hunted out, so that a group must keep constantly on the move. Furthermore, hunting depends as much on luck as it does on skill and is not a very reliable way to supply nourishment. I have gone on five-day hunting trips with the Yąnomamö in areas that had not been hunted for decades, and had we not brought cultivated foods along, we would have been extremely hungry at the end of this time—we did not collect even enough meat to feed ourselves. On other trips, we often managed to collect enough game in one day to feed the entire village.

GARDENING Although the Yąnomamö spend almost as much time hunting as they do gardening, the bulk of their diet comes from foods that are cultivated. Perhaps 85 percent or more of the diet consists of domesticated rather than wild foods—plantains are by far the most important food in the diet.

The Yąnomamö are constantly looking for potential garden sites. When I hunted with them, the topic of conversation that evening would eventually drift over to the merits of the area as a possible site for a new garden. Most new garden sites are, in fact, discovered by hunters.

The land for a new site should not be heavily covered with brush, which is difficult to remove. The larger trees should not be too numerous either, as it takes a good deal of work to chop them down. Ideally, the new site should have very light jungle cover, should be well drained, near a source of drinking water, and relatively free of thorny underbrush. The Yąnomamö call a garden *hikari täka;* jungle that has the potential of being a good garden is likewise called *hikari täka.*

The first operation in making a new garden is to cut the smaller trees and brush; the bigger trees, *kayaba hi,* are left standing until the underbrush is removed. Then the big trees are felled with axes and left lying on the ground to dry out in the sun.

My older informants claimed that they did not have steel tools when they were younger and had to kill the big trees by cutting a ring of bark off around the base of the stump, using a crude stone axe, piling brush around them, and burning them. The trees rarely fell, but the fire usually killed them, and their leaves dropped off, permitting the sunlight to reach the ground.

They also claimed that making a garden was more arduous in those days because a large area would have to be searched for the necessary quantities of kindling used to kill the big trees. Today, however, steel tools are quite common, being provided by the

Today, however, steel tools are quite common, being provided by the several missionaries who have recently located posts at a number of locations in Yąnomamö territory. The tools that they give to their local people are eventually traded inland to more remote villages so that all the Yąnomamö, even those who have not yet had any direct contact with outsiders, now have steel tools.[7] Before the missionaries arrived, the Yąnomamö occasionally obtained steel tools from the Carib-speaking Makiritare Indians, who have long been in contact with civilization. Some of the Makiritare made periodic canoe trips in the last century as far east as Georgetown in order to obtain these tools. Kąobawä told me that when he was a young man, his village had a single piece of steel, a portion of a broken machete that came ultimately from the Makiritare Indians by way of several intermediate Yąnomamö villages. Everybody in the village used this tool when they made their gardens. It was hafted on a split stick and used as an axe. I have seen broken machetes used in this fashion in the more remote, steel-poor villages.

The Yąnomamö usually fell the big trees toward the end of the wet season, although I have seen them do it at all times of the year. In general, the clearing of the land tends to be an activity of the wet season while the burning is done during the dry season, but this schedule is by no means rigorous. An adequate burning can be achieved at the peak of the rainy season, provided that there are two days of sunshine in succession. The dead brush and the leaves of the large trees dry out rather quickly in the sun, provided that they have been lying on the ground for a sufficiently long period of time. The trunks of the large trees are never burned, so that a newly cleared garden is strewn with logs lying helter-skelter all over the cleared patch. These serve as boundaries between individual gardens, as the crops belong to the person who plants them.

Each man clears his own land. Brothers will usually clear adjacent portions of land and, if their father is still living, his garden will be among theirs. The headman of the village generally has the largest garden, as he must produce larger quantities of food; he is obliged to give food away at feasts. He can frequently enlist the aid of other men to help him make a large garden. Kąobawä, for example, is helped by a younger brother, a brother-in-law, and the latter's son. Once in a while one of his sisters who lives in a different village visits for a long stretch of time, and her son-in-law also helps Kąobawä work in the garden during these visits.

After the brush has dried out and the larger trees felled, the portable timber and brush is gathered up into piles and burned, each man having several fires going in his own patch, to which he hauls the brush as he gathers it up. Usually, the fires are built under or next to one of the larger logs. In this way the logs dry out even more completely and can be easily chopped up by the women for firewood. The ashes are not scattered to improve soil fertility.

If the new site is a great distance from the previous garden, the men will have to make numerous trips between the two sites in order to transport the plantain cuttings. If an ally's village is closer to the new garden site, some cuttings can be borrowed from his gardens, thereby reducing the transportation labor. Each mature plantain or banana plant sends out suckers which sprout a few feet away from the adult stalk. When the Yąnomamö cut the bunch of plantains or bananas from the producing plant, they also cut the entire plant down to permit the younger suckers to receive the sunlight. The larger

[7] One missionary told me that he has given the residents of his village approximately 3000 machetes over the past eight years! These are traded inland to more remote Yąnomamö.